

**THE INFLUENCE OF FLASHBULB AND EVENT MEMORIES
ON PERCEPTUAL SPEED AMONG IRAQI POSTGRADUATE
STUDENTS WITH POST TRAUMATIC STRESS DISORDER**

JABBAR FRAYYEH SHRAIDA

UNIVERSITY SAINTS MALAYSIA

2014

**THE INFLUENCE OF FLASHBULB AND EVENT MEMORIES
ON PERCEPTUAL SPEED AMONG IRAQI POSTGRADUATE
STUDENTS WITH POST TRAUMATIC STRESS DISORDER**

by

JABBAR FRAYYEH SHRAIDA

**Thesis submitted in fulfilment of the requirements for the
Degree of Doctor of Philosophy**

UNIVERSITY SAINS MALAYSIA

August 2014

ACKNOWLEDGEMENT

I would like to acknowledge the support, encouragement and patience of a number of people who have contributed to the completion of this thesis. First of all, it is a pleasure to express my deep appreciation to the Dean, Deputy Dean, Professors, lecturers and others officials of School of Educational Studies, University Sains Malaysia.

I express my sincere and deepest gratitude to my supervisor Dr. Nor Shafrin Binti Ahmad for his guidance, encouragement, and critical feedback. All these were invaluable to carry out this work. She has demonstrated what it means to be a true mentor, someone who initially guided, then stepped along-side and walked with me to the end. Sincere thanks to my co-supervisor as well, Dr. Hairul Nizam Ismail and Dr. Shahizan Hasan who always kept his belief on me.

TABLE OF CONTENTS

Acknowledgement	ii
Table of contents	iii
List of tables	vi
List of figures	vii
List of Appendix	viii
Abstrak	ix
Abstract	x
CHAPTER 1 Introduction	
1.1 Introduction.....	1
1.2 Background.....	3
1.3 Problem Statement...	4
1.4 Research objective...	7
1.5 Research Questions.....	8
1.6 Research Hypothesis	9
1.7 Significance of the Study	10
1.8 Rationale of Study.....	10
1.9 Definitions of Terms.....	11
1.9.1 Flashbulb Memory.....	11
1.9.2 Event Memory.....	12
1.9.3 Perceptual speed.....	13
1.9.4 Post traumatic Stress Disorder.....	13
1.10 Limitations of the Study	14
1.11 Summary.....	15

CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction	16
2.2 Posttraumatic Stress Disorder	16
2.3 Event memory	21
2.4 Flashbulb Memory	25
2.5 Perceptual speed	33
2.6 Cognitive Theory	36
2.7 Conceptual Framework	45
2.8 Summary	46

CHAPTER 3 - METHODOLOGY

3.1 Introduction	48
3.2 Research Design	48
3.3 Research sample	50
3.4 Instrument	51
3.4.1 The measurement of post-traumatic stress disorder.....	51
3.4.2 The measurement of Flashbulb memory.....	51
3.4.3 The measurement of Event memory	52
3.4.4 The measurement of perceptual speed.....	52
3.4.5 Qualitative Interview Protocol	53
3.5 Translation and back-translation.....	53
3.6 Validity.....	54
3.7 Reliability	54
3.8 Pilot study	55
3.9 Research procedures	56

3.10 Analysis of Data.....	56
3.11 Qualitative Data analysis.....	57
3.12 Summary	59

CHAPTER – 4 DATA ANALYSIS AND RESULTS

4.1 Introduction	60
4.2 Descriptive Statistics	61
4.2.1Demographic Information	61
4.3 Normality of the data	63
4.4 Hypotheses Testing	66
4.5 Summary of the findings.....	81
4.6 Qualitative findings	81
4.7 Conclusion.....	83

CHAPTER – 5 Discussion, Recommendations and Conclusion

5.1 Introduction	84
5.2 Discussion of Results.....	85
5.3Qualitative findings	98
5.4 Implications.....	99
5.5 Suggestions	100
5.6 Conclusion	101
References.....	103

LIST OF TABLES

3.1 Pilot study	55
3.2 Statistical Analysis.....	57
3.3 Sample of schema	58
4.1 Visitors of the psychological consultation center	62
4.2 Research population with PTSD.....	62
4.3 Research sample with PTSD.....	62
4.4 Skewness and Kurtosis PTSD.....	63
4.5 Skewness and Kurtosis Flashbulb memory.....	64
4.6 Skewness and Kurtosis perceptual speed	65
4.7 Skewness and Kurtosis Event memory.....	66
4.8 Means of Flashbulb memory between genders.....	67
4.9 Independent Samples Test.....	67
4.10 Means of Event Memory between genders.....	69
4.11 Independent Samples Test.....	69
4.12 Means of perceptual speed between genders.....	71
4.13 Independent Samples Test.....	71
4.14 Mean scores of flashbulb memory.....	73
4.15 Flashbulb memory differences.....	73
4.16 Mean scores of event memory.....	74
4.17 Event memory differences.....	75
4.18 Mean scores of perceptual speed.....	76
4.19 Perceptual speed difference.....	76
4.20 Correlation between flashbulb memory and perceptual speed.....	77
4.21 Correlation between event memory and perceptual speed.....	78

4.22 Correlation between flashbulb memory and event memory.....	79
4.23 Descriptive Statistics.....	79
4.24 Variables Entered/Removed ^a	79
4.25 Model Summary ^b	80
4.26 ANOVA ^a	80
4.27 Coefficients ^a	80
4.28 Summary of the findings.....	81
4.29 Interview Participants based on the PTSD Level	81

LIST OF FIGURES

2.1 Conceptual framework	46
3.1 Sequence of the data collection and analyses	49
4.1 Normality of the data for students with PTSD	63
4.2 Normality of the data for Flashbulb memory.....	64
4.3 Normality of the data of perceptual speed.....	65
4.4 Normality of the data Event memory.....	66
4.5 Difference of the Mean Scores of Flashbulb Memory.....	68
4.6 Q- Q plot Flashbulb.....	68
4.7 Difference between male and female in terms of event memory.....	70
4.8 Q-Q plot Event Memory.....	70
4.9 Difference of Perceptual Speed between male and female.....	72
4.10 Q-Q plot perceptual speed	72
4.11 Mean of flashbulb memory.....	74
4.12 Mean of event.....	75

4.13 Mean of perceptual speed	77
-------------------------------------	----

LIST OF APPENDIX

Appendix A:PTSD Test (English Version)	116
Appendix B:PTSD Test (Arabic Version)	120
Appendix C:Flashbulb Memories Test (English Version)	122
Appendix D:Flashbulb Memories Test (Arabic Version)	124
Appendix E:Event Memories Test (English Version)	126
Appendix F:Event Memories Test (Arabic Version)	128
Appendix G:Perceptual Speed Test (English Version).....	131
Appendix H:Perceptual Speed Test (Arabic Version)	146
Appendix I:List of Panel Expert (Expert Validation).....	161
Appendix J:Expert opinions to know (the face validity).....	162
Appendix K: Expert opinions to know (Arabic Version).....	165
Appendix M : Qualitative Questions Interview.....	167

**PENGARUH INGATAN *FLASHBULB* DAN INGATAN PERISTIWA
TERHADAP KEPANTASAN PERSEPSI DALAM KALANGAN PELAJAR
IRAQ YANG MENGALAMI KECELARUAN STRES PASCA TRAUMATIK
[PTSD]**

ABSTRAK

Kajian terkini adalah tentang kesan ingatan *flashbulb* dan ingatan peristiwa terhadap kepantasan persepsi dalam kalangan pelajar yang mengalami kecelaruan stress pasca traumatik (PTSD). Kajian ini juga bertujuan untuk menentukan hubungan ingatan *flashbulb*, ingatan peristiwa dan kepantasan persepsi antara pelajar lelaki dan perempuan yang memiliki tahap PTSD yang rendah, sederhana dan tinggi. Untuk mencapai matlamat kajian tersebut, kajian ini menggunakan pendekatan soal selidik kuantitatif melibatkan empat jenis soal selidik yang mengukur PTSD, ingatan *flashbulb*, ingatan kejadian dan kepantasan persepsi. Seramai 354 pelajar pasca siswazah (177 lelaki dan 177 perempuan) telah dipilih daripada 516 pelajar pasca siswazah untuk tahun akademik 2011-2012 yang telah melawat pusat perundingan psikologi di *University of Baghdad* dan yang mungkin mengalami PTSD. Soal selidik telah diberikan kepada mereka untuk memastikan bahawa mereka mengalami masalah PTSD, dan hanya apabila terbukti akan diminta membuat tiga lagi soal selidik. Dapatan analisis statistik menunjukkan bahawa tiada sebarang perbezaan yang signifikan antara pelajar lelaki dan perempuan yang mengalami PTSD dari segi ingatan *flashbulb*, ingatan peristiwa dan kepantasan persepsi. Tiada perbezaan yang signifikan juga didapati dalam kalangan pelajar-pelajar yang mempunyai tahap PTSD yang rendah, sederhana dan tinggi.

THE INFLUENCE OF FLASHBULB AND EVENT MEMORIES ON PERCEPTUAL SPEED AMONG IRAQI POSTGRADUATE STUDENTS WITH POST TRAUMATIC STRESS DISORDER

ABSTRACT

The present study is about the effects of the flashback and event memories on the perceptual speed for post-traumatic stress disorder students. It aims to determine the relationships of flashback memory, event memory, and perceptual speed between male and female students with mild, moderate and severe levels of PTSD. To achieve such aims the study adopts a quantitative survey using four types of questionnaires for PTSD, flashback memory, event memory, and perceptual speed. A total of 354 postgraduate students (177 males and 177 females) were chosen from 516 postgraduate students for the academic year of 2011 - 2012 who had visited the Psychological Consultation Centre at the University of Baghdad due to their suffering from PTSD. Questionnaires were given to them in order to confirm their PTSD, and then only students with PTSD were given the other three instruments. Results of the statistical analyses indicated that there is no significant difference between male and female students with PTSD in term of flashback memory, perceptual speed, and event memory. No significant difference in the same terms was also shown among students with mild, moderate, and severe PTSD.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Memory is significant for individuals because acquisition of any knowledge begins with sensory memory, which entails operations in direct contact with the surrounding environment, which then affect the further information processing and understanding (Zayat, 2006). Thereby, mental processes and knowledge that affect the perceptual speed can sometimes be used as a standard guide to judge the potential academic superiority of certain students (Sharif, 1999).

Moreover, memory is considered as a central hub for all kinds of mental activities, such as sensory perception, attention, and cognitive development (Omar, 2007). Mental attitude involves the use of knowledge according to the knowledge base that an individual has gained from world events. Thus, memory might also help an individual remember new information or solve new problems, and adding new information to the knowledge structure is possible (Wretsch, 1990). In the light of that, many scholars of cognitive psychology agreed that improving human memory in terms of effectiveness and capacity of assimilation is significant yet challenging (Kendler, 1984).

The challenge of improving human memory lies beneath the fact that memory is vulnerable to external psychological pressures that keep increasing depending on the progress and advantages of the societies, including the complications of conflicts (Saleh, 2002). Such natural and unnatural psychological pressure might lead individuals to psychological trauma. After being registered to ones' memory, some

events might elicit major threats to personal factors in individuals, cripple their dynamic and put them into dependency on their communities, up to an extent where their physiological aspects are threatened (Hab Allah, 2006). Such symptoms refer to post traumatic stress disorders (PTSD), which was indicated as a high proportion of memory loss when trauma occurs whereby the relationship between the victim and the aggressor is very strong, such as in wars or sexual abuse by the people close to the victim (Jennifer, 1999).

A good example for PTSD is the case of the symptoms of memory loss and even peripheral heart disease, which were commonly found in the US Civil War veterans, who obviously faced their aggressors in close range battles (Jennifer, 1999). The images of the aggression in the battles were captured in their memories and gave them psychological pressures, which contributed to their memory loss and other physiological symptoms. The ‘images’ of events that were captured in the memory refers to a term called flashbulb memory (Sharot, 2005).

In an educational context, the aforementioned challenge lies beneath the fact that in order to progress in their studies, they need to have a more efficient mental process; which means that they need to have good perceptual speed (Cherkaoui et al., 1993). While each individual prefers to deal with information using their own cognitive style strategies to complete mental processes (Kendler, 1984), common exposure to traumatic events might disturb the process of any effort to improve it.

In the context of this current study, it is believed that studies related to how mental process is affected by traumatic events are important in academic settings in order to identify the extent of the effect of events on the students and their academic

achievements. Moreover, this current study was conducted in Iraq, where the images of the war are captured in the memories of most of its citizens.

1.2 Background

Iraq is located in the Arabic Gulf and bordered by several countries, namely Syria, Jordan, Saudi Arabia, Kuwait, and Iran. The country's population is 29 million, diversified into many ethnic and religious groups such as Arab Shia, Arab Sunni, Kurds, Christians, and other ethnic groups (Al-Jamil, 2006).

The country had been shaken by many wars for decades. In 1973, Iraq took part in the war between the Arabs and the Israel and lost 835 soldiers (Shenshil, 1990). From 1974 to 1975, civil war between Kurdish rebels and the central government took place in the northern Iraq took the lives of the soldiers from both sides (Al- Burgess, 1993). Thousands more death were recorded between 1980 and 1988, where the war between Iraq and Iran took place (Shenshil, 1990). The first Gulf War in 1991, which was preceded by the Iraq invasion of Kuwait in 1990 resulted in more deaths and losses (Al- Burgess, 1993).

Due to the wars, between 1991 and 2003, many citizens left the country due to the United Nations embargo, the destruction of infrastructure, administrative corruption, deteriorating security situation, and continued violence between various armed groups and coalition forces. Around 85000 civilians killed and hundreds forced to escape from the country due to the unrest (Al-Jamil, 2006).

It was noted by Saleh (2002) that the people of Iraq have witnessed the horrors of war more than most people in the modern world. Many witnessed the disastrous wars in Iraq for more than a quarter of a century. The torture, persecution,

mass graveyards, and the bombing of chemical and sophisticated weapons, including booby traps and beheadings, have killed or maimed many. The wars left many orphans, collapsed institutions, and a divided nation.

As a result, past experiences affect many individuals in Iraq. In other words, opportunities of moving on with life depend on their capacity to recover from past experiences (Saleh, 2002). Thus, the failure of an individual to recover from the terrible experiences in the past results in unnatural and unbalanced existence. Kubaisi (2004) conducted a study on 178 affected female students in Baghdad and the finding showed that 62% suffering from post traumatic stress disorder. According to this first comprehensive study of a general civilian population, surveyed a representative sample of 8,000 adults aged 15-54, over half, 60.7% of men and 51.2% of women, reported being exposed to traumatic events. The majority had experienced two or more types of trauma. As per Foa, Keane, and Friedman (2000). though 80% to 90% of persons are exposed to one or more traumatic event during their lifetimes, only 10-20% develops PTSD (Yehuda et al., 1998).

1.3 Problem Statement

Exposure to risks is one of the causes of psychological trauma (Saleh, 2002). The fact that many Iraqis have experienced life threatening and stressful situations had driven them to severe shocks. Up to the date of this thesis is being written, the Iraqis continue to live in an environment dominated by violence and other acts of terrorism. Such situation elicits significant psychological effects (Al-Jamil, 2006). These traumatic experiences lead to the emergence of various symptoms that are associated with PTSD; the symptoms vary from one person to the others depending on the type of trauma and the different psychological construction of each individual.

Many studies suggested that PTSD can lead to aggressive behavior (Saleh, 2002) and decrease in brain functions in terms of idea adherence (Attrani, 1995). Especially when the traumatic events affect the balance of social construction (Al-Atoum, 2004) as well as inflicting constant fear, distrusts, and insecurity (Attrani, 1995). In other words, the wars in Iraq which represent the major crimes against innocent people have left negative psychological effects on individuals that may accompany the Iraqis throughout their lives. When the conditions are not understood, the psychological effects might develop chronic psychological conditions that affect individuals and their social environment (Attrani, 1995).

Rapid changes within the Iraqi society drove individuals to be in the state of fear (Kubaisi, 1998) that affects the social structure and social constructions. Furthermore, the violence and terrorism change the biological, psychological, and social conditions of individuals, as well as leave lasting impressions on their memories.

Flashbulb memory is an appropriate name for the phenomenon in which it briefly suggests an amazing indiscriminate illumination (Brown & Kulik, 1977). It can be described as an exceptionally vivid graphic images (snapshots) of emotionally arousing moments and circumstances, which is associated with the news newly heard; some even believe that flashbulb memories are highly in opposition to forgetting (Neisser, 1982). It can also be categorized as one of autobiographical memory (Brown & Kulik, 1977).

However, because it is only somewhat indiscriminate and far from complete, it is still debatable whether it is inherently more exact than other types of autobiographical memories; while some researchers believe that flashbulb memory

involves personal importance, consequentiality, emotion, and an astonishment, others believe that ordinary memories can also be exact and long lasting if they are highly distinctive, personally significantly, or repeatedly rehearsed (Neisser, 1982). Nevertheless, it is agreed that the principal determinants of a flashbulb memory are a high level of amazement, consequentiality, and emotional arousal compared to the other autobiographical memories (Brown & Kulik, 1977). Obviously, traumatic events can be included as the most emotionally arousing events that might trigger the flashbulb memories.

Traumatic events can be defined as an experience of any event that led to shock (Ahmad, 2007). In the context of Iraq, most of the traumatic events were shown in the form of frequent and accumulated threats to life such as bombings or military attacks. Traumatic events entered individuals' mind through event memories, which initiates the recollection of past events (Ahmad, 2007). In other words, event memory is a mental process inflicted by the overlap between self-reflection and mood of an individual.

As mentioned in the DSM-IV, stress disorder is a disorder caused by exposure of an individual to psychological trauma, which can be so severe that it becomes cumbersome. It is characterized by continually re-experiencing the traumatic event and continuing avoidance of stimuli associated with shock (the ideas or feelings, places, or people), weakness in the capacity to respond (remember, disability, isolation and lack of sentimental feeling), suffering from symptoms of arousal (permanent difficulties in sleeping, concentration, or increase of the tension and vigilance). There are three levels of severity in stress disorder, namely acute, chronic and late appearing.

Another variable that plays its role in the studied phenomena is perceptual speed. It refers to the speed and accuracy in recognizing visual details, shapes, and their similarities or differences of visual stimulations (Abu Hatab, 1993). Some people assumed that perceptual speed reflects the reality quite accurately, however, it might not capture every single stimulus in a scene, because a certain range of stimuli (for instance, ultrasonic sounds, magnetic field, electrical energy, or anything beyond and under human sensitivity) is not 'sensible' to the human sense that can be deteriorated by age, boredom, fatigue, or illness, and their perception of the sense is depending on the expectations, motivations, and past experiences (Davidoff, 1988).

It is significant to study about the interrelationship between flashbulb memories and perceptual speed of individuals who suffer from PTSD due to the aftermath of the United States' attack in 2003. Theoretically, traumatic events were recorded as 'snapshots' and stored in the individuals', and the perceptual speed determined how detailed and how meaningful a snapshot can be for certain individuals. Later on, when an associated stimulus is being exposed to the individuals, the memory of the snapshot might raise, and affects their performances either socially, professionally, or academically. This current study is conducted based on a belief that the PTSD has tolled their flashbulb memories , event memories, and perceptual speed.

1.4 Research objectives

The overall objective of this current study is to investigate the interrelationships among PTSD, flashbulb memories, event memories and perceptual speed. The overarching aim is broken down into several research objectives as follows:

1. To determine the difference in term of flashbulb memories, event memories and perceptual speed between male and female Iraqi students with PTSD.
2. To determine the difference in term of flashbulb memories, event memories and perceptual speed among Iraqi students with mild, moderate and severe levels of PTSD.
3. To determine the correlation between flashbulb memories, event memories, and perceptual speed among Iraqi students with PTSD.
4. To determine the influence of flashbulb memories and event memories on perceptual speed among Iraqi students with PTSD.

1.5 Research Questions

In order to achieve all of the research objectives, the following several questions are to be answered:

1. Is there any significant difference in term of flashbulb memories, event memories and perceptual speed between male and female Iraqi students with PTSD?
2. Is there any significant difference in term of flashbulb memories, event memories and perceptual speed among Iraqi students with mild, moderate and severe levels of PTSD?
3. Is there any significant correlation between flashbulb memories, event memories and perceptual speed among Iraqi students with PTSD?
4. Is there any significant influence of flashbulb memories and event memories at perceptual speed among Iraqi students with PTSD ?

1.6 Research hypotheses:

Accordingly, data is collected and analyzed in order to test the following null hypotheses:

1. There is no significant difference in term of flashback memories between male and female Iraqi students with PTSD.
2. There is no significant difference in term of event memories between male and female Iraqi students with PTSD.
3. There is no significant difference in term of perceptual speed between male and female Iraqi students with PTSD.
4. There is no significant difference in term of flashback memories among Iraqi students with mild, moderate and severe levels of PTSD.
5. There is no significant difference in term of event memories among Iraqi students with mild, moderate and severe levels of PTSD.
6. There is no significant difference in term of perceptual speed among Iraqi students with mild, moderate and severe levels of PTSD.
7. There is no significant correlation between flashback memories and perceptual speed among Iraqi students with PTSD.
8. There is no significant correlation between event memories and perceptual speed among Iraqi students with PTSD.
9. There is no significant correlation between flashback memories and event memories among Iraqi students with PTSD.
10. Flashbulb memories and event memories have no significant influence on perceptual speed among Iraqi students with PTSD.

1.7 Significance of the study

Generally, this current study can be considered significant mainly because its findings can pave the way for future research on trauma-related stress disorders that negatively affect the academic performance of university students. It is understood that university students are at the crossroads of late adolescence and early adulthood. Psychological, social, and academic problems, as well as increasing conflicts in the customs, traditions, and values between the old and new ways of life imposed by the development of civilization in their communities could adversely affect their lives (Taher, 1988). It is expected that the findings of this current study can help university students in Iraq to overcome the pressure following the shock they have experienced and then to mitigate its negative effects.

In a wider perspective, PTSD in Iraq is not only experienced by university students. Many members of the society have to face a wide range of shocks and crises caused by a wide range of pressures, thereby the knowledge related to the relationships among flashbulb memories, event memories and perceptual speed might contribute to scientific knowledge, especially in PTSD-potential developing nations.

1.8 Rationale of study

The study aims to determine the extent to which the traumatic events experienced by students affects perceptual speed. This current research paves the way for the worldwide study of memory and it is the first of its kind in Iraq.

That is, the study tries to explore the extent of the impact of flashbulb and event memories of the U.S. attack on Iraq in 2003 and its impacts on the perceptual speed

for students who have PTSD. In addition, this work provides valuable information to educators and policymakers on whether matched cognitive styles of the teacher are in accordance with the reviewed literature and the study's explorations. Moreover, the present research is expected to provide a new area of investigation and to develop a set of identifying factors that affect Iraqi students in Baghdad University.

The results of this study enable school administrators and those in charge of planning and implementing the recruiting of staff and faculty to enhance and broaden their understanding of the relationship between teacher turnover and student. These enhancements include options for information technology, computers, medicine, biology, physiology, sociology, and using a variety of approaches and methods.

1.9 Definition of terms

This section is dedicated to discussing the conceptual definition of the terms used in this study, as well as the operational definitions of the same terms in the context of this study. Conceptual definition refers to the definition of terms based on the theories and previous studies. Operational definition refers to the definition specifically used in this current study. The following subsections present the conceptual and operational definitions of each terms used in this current study.

1.9.1 Flashbulb Memories

A. Conceptual definition: In general, memory referred to an emotionally significant event that people often recall with more pulse and vivid imagery than everyday events (Santrock, 2000). Flashbulb memories can be defined as a rich memory record of emotionally significant, meaningful and extraordinary events (Nairne, 2009; Zimbardo et al., 2003). It can also be defined as vivid memories of the

circumstances where an individual first learns about consequential amazement and emotional arousal (Ciccarlli et al., 2008; Gazzaniga et al., 2006).

B. Operational definition: In the context of this study, flashbulb memories refer to rich emotionally significant memory records of the circumstances related to the wars and war aftermaths in Iraq. A scale developed by Hirst et al. (2009) was utilized to measure the variable of flashbulb memories (Appendix C).

1.9.2 Event Memories

A. Conceptual definition: Event memories can be defined as a re-compilation of long-term forms of public, non-recurring incidents in the life of an individual that is stored for future retrieval (Maylor, 2002). Accordingly, others also defined it as the process of retrieval of facts and events that contain the interaction between the events of the past and the future (Conway, 2000). Furthermore, it is created when a person passes through places and celebrates or plans an event in their life and then stores these memories as an important repository of information (Tulving & Lepage, 2000). According to Neisser (1982), event memories are often considered special because they involve events that are not ordinary or everyday and usually are not personally experienced but, rather are public and emotionally charged. Rubin (1986) pointed to the type of memory for the personal circumstances in which one first learned of these events.

B. Operational definition: In the context of this study, event memories refer to a special memory caused by exposure to traumatic events related to the wars and war aftermaths in Iraq which is encompassed by a personal sense of past and present. In order to measure the event memories, a scale adopted by Hirst et al. (2009) was utilized (Appendix E).

1.9.3 Perceptual Speed

A. Definition of concept: Perceptual speed is the speed in the performance of work that is urgently required to understand the form or visual form provided and to determine the characteristics along with the properties of the models of similar forms whereby the depiction is characterized by visual means (Al-Del, 1995). According to Cherkaoui et al. (1993), perceptual speed is the identification of small and micro-elements in the form of a specific optical model. Finally, Abu Hatab (1993) defined perceptual speed as the ability that involves speed and accuracy in recognizing visual details, shapes, and their similarities or differences (Abu Hatab, 1993).

B. Operational definition: In the context of this study, perceptual speed refers to the capability of an individual to connect a visual stimuli to a certain complex meaningful concept in his/her mind, in order to select the correct answers for each question adopted from Abdul-Jabbar (2010) within 15 minutes (Appendix G).

1.9.4 Post Traumatic Stress Disorder (PTSD)

A. Definition of the concept: PTSD is a psychological discomfort that lasts more than a month following stress and would produce anxiety in anyone who experienced stress (Coon, 2007). According to Santrock (2000), PTSD is an anxiety disorder that develops after exposure to a traumatic event, rigid oppressive situations, severe abuse, and natural and unnatural disasters. Rathus (2008) defined PTSD as a disorder that follows after an ordeal or event outside the range of normal human experience, characterized by features such as intense fear, shunning of stimuli associated with the event, and reliving of the event. Finally, Nairne (2009) described the disorder as a trauma-based anxiety disorder characterized by flashbacks, shunning of stimuli associated with the traumatic event, and chronic arousal symptoms.

B. Operational definition: In the context of this study, PTSD refers to the stress levels of individuals after being exposed to the wars and war aftermaths in Iraq. An instrument adopted from Kubaisi (1998) was utilized, and the degree of PTSD is differentiated as follows: the score between 49 and 96 indicates a severe case of PTSD, the score between 25 and 48 indicates a moderate case of PTSD, and finally the score between 7 and 24 indicates a mild case of PTSD (Appendix A).

1.10 Limitations of the Study

The study is limited to postgraduate students studying at Baghdad University who were chosen among students with PTSD. The study defined the tests and standards used for the purposes of the current study, such as a diagnostic test for PTSD, memory test for flashbulb and event memories, and test for perceptual speed. The study was conducted in the academic year 2012 to 2013, and included male and female students as respondents. Data collection was done for the second semester of the same academic year. Another study limitation pertains to the generalizability of the results. The data were obtained from only one university and thus cannot represent students from other universities. The study also does not control the variables, such as physical conditions as well as economic and social demography of the students. The study focused on identifying the effects of flashbulb memories and event memories on the perceptual speed among male and female Iraqi students with PTSD.

1.11 Summary

Research backgrounds, problems, and questions have been presented in this chapter. Terms have been operationally defined, and research limitations have been set. The next chapter of this thesis presents the reviewed literatures and previous studies related to the variables involved in this current study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter discusses the theories and previous findings related to the variables used in this current study. The neuropsychological aspects of PTSD, cognitive theory, flashbulb memories, event memories and perceptual speed are discussed, as well as the interrelationships among those variables. The discussion also covers short- and long-term memories and their relationships with flashbulb memories, event memories, and perceptual speed. Finally, a brief summary of the chapter is provided.

2.2 Post Traumatic Stress Disorder (PTSD)

Clinical observations indicated that physiological impairment is a collateral response to exposure to a traumatic stressor. The functional problems of PTSD are caused by molecular changes in the nervous system and are associated with heart palpitations, fatigue, effort respiration, and physical tremors (Norris, 2002). The main causes leading to PTSD include hazardous situations that comprise natural calamity, such as earthquakes and floods, man-made disasters, such as war, nuclear accidents, and tragic accidents, as well as physical abuse, all fall outside the scope of normal human experience; a person who endures these adverse events undergoes a long period of readjustment (Atkinson et al., 1990). The irritable heart syndrome or Da Costa's syndrome is associated with combat experiences (Wooley, 1989). Kardiner, who clinically treated World War I veterans, noted that the patients had excessive hyper arousal, muscle tension, and heart rate as well as an exaggerated recoiling response (Kardiner, 1988).

Common symptoms include experiencing traumatic events in the form of nightmares and emotional flashbacks, alienation in social relations, and elevated arousal, anxiety, and guilt (Foa & Riggs, 1995). PTSD is also associated with an elevated risk for substance abuse, depression, and suicide attempts (Warshaw et al., 1993), as well as a great variety of physical health problems (Beckham et al., 1998). Shocking events that cause PTSD are not only related to wars and disasters. Many types of trauma that involve a threat to life affect males, females, and children; these may also result in PTSD. Psychological trauma that occurs in adults does not necessarily need medication. A person may recover with the help of friends (advice and guidance) and support of a religious preacher. However, many people need the help of specialized medication to succeed in overcoming the psychological damage caused by trauma or accident (APA, 2002).

Although the experience of a trauma does not lead to long-term psychological problems, some individuals continue to experience trauma-related symptoms long after a trauma occurred. This condition often qualifies for a diagnosis of PTSD, depression, or alcohol or substance abuse (Saigh & Bremner, 1999). The average rate of PTSD following exposure to a traumatic event is around 25% to 30%, even in certain traumatic events, such as rape (Acierno et al., 1999). Other studies on PTSD suggest a specific association between the extreme stress of a trauma and alterations in memory function (Bremner, 1996).

Clinicians have pointed out these memory disturbances in PTSD patients for decades. In a study on World War II veterans, about 5% of the soldiers who had been in active combat had no memory about the events that had just occurred (Norris, 2002). Studies of veterans of World War II showed that many suffered from episodes

of memory loss (Bremner, 1995). Two types of memory disturbances have been identified in traumatized individuals are intrusive memories and impoverished memory functioning (APA, 1994). Intrusive memories are accompanied by high levels of arousal involving a diverse sensory modalities or behavioral responses that may be experienced in reenactments of the original trauma, that is flashbacks (Witvliet, 1997).

PTSD involves enduring psychological discomfort attributed to the experience of a major traumatic event. PTSD is often seen after a rape or assault, a severe automobile accident, a harrowing war experience, a natural disaster, or after witnessing someone's death (Vernberg et al., 1996). However, traumatic experiences such as these appear to be much more widespread. In some instances, PTSD does not surface until many months or years after a person has been exposed to severe stress (Holen, 2000). The widespread symptoms include experiencing the traumatic event in the form of nightmares and flashbacks, emotional numbing, alienation, problems in social relations, a growing sense of vulnerability, as well as elevated arousal, anxiety, anger, and guilt (Feeney, 1999).

A study on the treatment for female clients with PTSD who had been the victims of sexual or non-sexual abuse compared the effects of stress inoculation training (including relaxation techniques, guided self-dialogue, and role play) with the effects of prolonged exposure, whereby the traumatic event was repeatedly relived in imagination. The two forms of treatment decreased the rigidity of PTSD and depression comparably. However, prolonged unveiling was more effective than stress inoculation training in reducing anxiety and improving social adjustment (Lee et al., 2002).

Extremely stressful traumatic incidents can leave a lasting effect on the victim's psychological functioning. PTSD involves enduring psychological discomfort, attributed to the experience of a major traumatic accident. Researchers began to appreciate the frequency and rigidity of PTSD after the Vietnam War ended in 1975 when a number of psychologically scarred veterans returned home. These veterans displayed a series of psychological problems and symptoms that, in many cases, lingered much longer than expected. Studies suggested that nearly half a million Vietnam veterans suffered from PTSD over a decade after the war ended (Schlenger, et al., 1992).

Although PTSD is widely reported among Vietnam veterans, the disorder is seen as a response to other cases of traumatic stress as well, and PTSD appears to be much more widespread than originally believed. Research suggested that about 8% of people have endured PTSD at some point in their lives (Solomon & Canino, 1990), with about 60% of these cases turning out to be long-lasting (Kessler et al., 1995).

The first comprehensive study of a civilian population surveyed a representative sample of 8,000 adults aged 15 to 54. About 60.7% of the men and 51.2 % of the women reported being exposed to traumatic incidents. The majority had experienced two or more kinds of trauma. Foa, Keane, and Friedman (2000) cited a similar high rate of exposure in diverse civilian populations. According to another study, 69% of women reported being criminally victimized at least once in their lives (Breslau, Davis, Andreski, & Peterson, 1991). A total of 84% of undergraduate college students at a Midwestern university reported experiencing one traumatic event, whereas 33% reported experiencing four or more traumatic events (Vrana & Lauterbach, 1994).

Kubaisi (1998) aimed to build a scale diagnostic for patients with PTSD. The researcher observed significant differences in the disorder in terms of gender and age, and detected the most striking features that contribute to this disorder. The study included 150 outpatient mental patients from both genders, aged between 19 and 59 years old. The sample included 82 Iraqi prisoners and 68 civilians. The results showed that 5.3% suffered from PTSD, 74.7% had severe PTSD, and 20% were diagnosed with chronic PTSD that presented late. The study also found that 22.6%, 42.6%, and 34.7% had simple, medium, and severe PTSD, respectively. For the symptoms associated with the disorder, the results showed that 48.6% felt guilty because of the commission of error, 38.6% felt guilty because they were alive, 46.6% had reduced awareness on the happenings in their surrounding, and 2.6% suffered from the feeling of real reality. About 50% suffered from personal self-change, 20.6% hurt or killed people, 63.3% appeared to have the case of feeling liberation in using pictures of intellectual or glamorous. For people with high status, about 65.3% experienced feelings of despair, 55.3% suffered from poor memory and forgetfulness, 89.3% suffered from grief and depression, which is the highest percentage recorded compared with that for other symptoms, 84.6% had feelings of oppression and loss, and 66% suffered from sexual disorders of non-organic origin (Kubaisi, 1998).

Individuals who experience intense emotional reactions within or immediately after the traumatic accident have elevated vulnerability to PTSD. Vulnerability is evident among people whose reactions are so intense that they report dissociative experiences as in most psychological disorders. Anxiety disorders develop out of complicated interactions among multiple factors. Classical conditioning, observational learning, and cognitive and personality factors appear to

be especially important, but biological factors may also contribute to anxiety disorders (Weiten, 2008).

2.3 Event Memories

A number of studies demonstrated a remarkable development in the area of autobiographical memory which may reflect the sense of self, which represents the sequence of events and ideas of the individual. In particular, event memories depends mainly on the recollections of past experiences and the ability to absorb these experiences (Wechler, 1991). Schrootsk (1992) conducted a study on the impact of trauma on event memories. The findings are similar to the idea proposed by Bartlett that event memories are subject to the principles of remembrance and forgetting, and thus, the distribution of events moves according to a classic curve when a person remembers and forgets certain things (Klein, 2004).

Memory refers to the personal retrieval of individual events. Powerful memory recovery appears in various forms, such as sight, sound, hearing, smell, and feeling, which lasts throughout life; and it is different for different periods in a person's life. For example, recovering the memory of an accident has specific and general elements, as well as the personal aspects. Individuals usually tend to remember some aspects of a personal accident that happened in a certain period of life, and link them to the impact of a traumatic event (Solso, 1997).

The storage of these events typically comes in a form similar to the original manuscript, and event memories is subject to change and loss to a large extent. This type of memory involves important information as a basis for knowing the events that were encountered unexpectedly in the past, and these memories rely on other information. This dependency is largely due to the structure of the methodology that

leads to the storage of meanings in the memory. The information in the event memory is quickly forgotten once new information is obtained, thus, the memories constantly change, and the process of retrieval itself becomes part of the flow of information to the event memories (Francoise, 2001).

The event memories is subject to experimentation and is continually assisted by the memory of meanings, which is active to a lesser extent and remains relatively constant over time. According to experts, the recovery of the event memories of a person's childhood is weak during adolescence and adulthood due to the incomplete development of some areas of the brain. Memory recovery in childhood has been investigated in several studies, including that of William et al. (1991), who analyzed individuals' recovery of incidents experienced during the early period of their lives. He concluded that the memory of the most important life events diminished in individuals between the ages of 18 and 35. Additionally, the retrieval of incidents was at its lowest level when a longer period of time had passed (Wilson, 2003).

This type of recovery is influenced by culture and the progression of the individual's life, indicating that cultural experiences and social development affect not only memories but also the way by which individuals look back at them. The culture of a community is determined to a certain extent; it activates the information in the memory and the attitudes toward information retrieval. The purpose of retrieval of cultures tends to be related to the evaluation of the loopback of long-term memory and to their ability to retrieve abstract ideas and facts. Some cultures are based on social recovery of short-term memory. These cultural factors include marital relations between members of the same family, and the kind of cultural influence on the strategy of retrieval used by the individuals under different

circumstances. A study conducted among Americans and Chinese found that the latter have skills in the retrieval of short-term incidents better than the former due to Chinese cultural values that encourage individuals to develop the recovery skills for this type of memory (Howses & Katz, 1992).

A study by Pioliono (2002) showed that memories of events fade and shrink. The literal meanings of words and incidents are reduced but compensated by an increase in the memories of the verbal meanings. Rubin, Schrauf, and Greenberg (2003) revealed that these are probably two special meta-cognitive judgments. In examining the characteristics of autobiographical memories, these researchers demonstrated that recollection and thinking consistently have different predictors. Fitzgerald (2007) provided additional support for this concept through an examination of the characteristics in four types of autobiographical memories by using structural neutralization modeling. Accordingly, a study by Al-Samurai (2006) on the university students showed that gender differences between males and females in relation to event memories while a study by Al-Kubaisi (2004) showed that gender differences are not often present in many different studies.

Event memories represent a series of construction and ongoing training, which does not indicate that the personal events are imprinted in the memory, but that tendencies and mood enable people to re-retrieve the experiences of past personal events. The meanings of words are elaborated through the use of different types of rules and through what the mood depicts as the state of mental and intellectual ability, which applies to the case of a singular verb formula. The event memories is a form of control and supply that determines how a person makes sense of events in his own life; that is, the event memories refer to the relationship between

the meanings of words and the sequence of events that have caught the individual's attention. This phenomenon is a reason that a person remembers certain events in a more personal way than others do (Barba, 2002).

Interestingly, the relationship between perceptual speed and event memories were reported to be existed (Al-Kubaisi, 2003) and not existed (Al-Samurai, 2006). However, a study by Bremner (2007) reported that returning Iraq soldiers did have less verbal memory performance as compared to pre-deployment (Bremner, 2007). A study by Dulaimi (2005) upon 400 male and female secondary school students in Iraq reported that event memories between male and female students are different; among students with severe PTSD, male students tend to have higher event memories, for moderate PTSD, female students were reported to have higher event memories, and among students with mild PTSD, male students developed higher event memories.

A study conducted by Levine (2001) indicated that adults tend to think back and remember the details of separate events, places, perceptions, and ideas that are not linked to a specific time or place. Young people have the ability to remember certain events spontaneously as opposed to adults who have an inaccurate evaluation and exaggerated memories of events that occurred recently. Fitzgerald (2007) demonstrated that across these memory types, the two-factor model provides a better estimate of the data compared with the one-factor model. In a follow-up study, Johnson and Chrosniak (1990) showed that some adults have difficulty remembering the perceived details related to a specific incident. These difficulties result from the lack of ability to imagine the event and the confusion about multiple events, rather than from imagining and remembering a single event (Piolino &